

REMARKS

Claims 1-7 are pending in this application. Claims 1-6 have been amended to merely to address possible problems of indefinite language. Claim 7 has been added in order to further define the invention.

Claims 1-4 are rejected under 35 U.S.C. §102(a) as being anticipated by Ruf. This rejection is respectfully traversed.

One Embodiment of the Invention

One embodiment of the invention is directed to an audio signal processing apparatus. In the detailed example illustrated in Figs. 1-3 of this application, an analog stereo audio signal, S_{in} is converted to digital data D_{in} . A BPM measuring section 3B measures the beat per minute (BPM) of the digital data. Magnification designation buttons 21-26 are used to set periods T_{BPM} and T'_{BPM} , set by the automatic mode or the manual mode, with magnifications of 1/4, 1/2, 3/4, 1/1, 2/1, 4/1. The processing sections B4-B8 are supplied with a period signal BT by setting section 100 to perform predetermined processes in synchronism with the set periods T_{BPM} and T'_{BPM} as modified by in accordance with the selected magnification designating button 21-26.

In this way, once a magnification button is pushed on, it is sure to produce a musical sound having a tempo which is coincident with a ratio of a tempo of an original musical sound. For example, if magnification button 21 is pushed, a musical sound having a tempo is produced which is coincident with 1/4 of a tempo of an original musical sound.

Ruf

Ruf is merely directed to a portable electronic metronome which indicates a beat through an auditory and visual indicator, and includes a visual read-out of which beat is occurring per measure. Thus, for example, in 4/4 times, a display advances from 1 to 2 to 3 to 4 in accordance with a selected time signature.

When a system becomes operative, a user is enabled to enter an initial tempo directly by depressing a tempo key 102 followed by a numeric entry. A BPM (beats per measure) key 130 is used to enter time signatures (e.g., 3/4, 4/4, 5/4 or 6/8 time). See col. 2, lines 43-48 and col. 3, lines 1-5. Fig. 4 shows a display panel displaying a representative display according to the invention in 4:4 time period. In the example shown, the count is in the second beat for the measure. In addition to the digital read out of the number 2 at 402 (which indicates the second beat of the measure) a graphical display 404 is additionally used with a shading 406 used to indicate that the timing is currently in the second beat of the measure.

However, Ruf fails to teach that an audio signal is input into the metronome. Thus, Ruf fails to teach or suggest means capable of automatically detecting a beats per minute or beat period of the input audio signal. While Ruf does teach the ability to change a tempo (entered by a user) and a beats per measure, such description does not teach or suggest "means capable of automatically detecting beats per minute of [an] input audio signal" as set forth in claim 1. Further, because Ruf fails to teach the input of an audio signal, Ruf also fails to teach changing the tempo of the audio signal (previously recited as being input) in accordance with the changed beats per minute and the changed beat period as set forth by claim 1.

In view of the above, it is respectfully asserted that the rejection with respect to claim 1 is improper. Claims 2-4 depend from claim 1, and thus the rejection of these claims is improper at least for this reason. In view of the above, the Examiner is respectfully requested to reconsider and withdraw this rejection.

Claims 5 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ruf in view of Rothbart. This rejection is respectfully traversed.

Rothbart

Rothbart is also directed to a metronome in which the type, pattern and frequency of beats are determined by data stored in a memory manually programmable by means of a keyboard. The Examiner alleges Rothbart discloses an audio signal processing apparatus including a mixer wherein a mixing ratio adjusting means adjusts a mixing ratio such that an audio signal generated by changing the tempo of the audio signal may be mixed with an input audio signal, highlighting col. 3, lines 18-21 and lines 27-32 as well as col. 6, line 30 through col. 7, line 5.

However, despite the Examiner's assertion, there is no audio signal input into the device of Rothbart. Thus, Rothbart, like Ruf, fails to teach or suggest means capable of automatically detecting a beat per minute of an input audio signal or a beat period of the input audio signal, changing the beat per minute or the beat period in accordance with the magnification designated by magnification designating means nor changing the tempo of the audio signal (previously recited as being input) in accordance with the changed beats per minute and the changed beat period. Further, it is unclear what element of Rothbart constitutes a mixer which mixes two audio signals, as set forth in claims 5 and 6.

In view of the above, it is respectfully requested that the Examiner reconsider and withdraw this rejection.

Claim 7 has been added in order to further define the invention. This claim is allowable at least for the reason that the prior art fails to teach or suggest its recitations.

If for any reason the Examiner feels that the above-identified application is not now in condition for allowance, it is respectfully requested that he contact the undersigned attorney at the below listed telephone number to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicants hereby petition for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2300, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

RENT FOX KINTNER PLOTKIN & KAHN



Patrick D. Muir
Attorney for Applicants
Reg. No. 37,403

Atty. Docket No. P7156-9038
Metropolitan Square
655 15th Street, N. W.
Suite 330 - G Street Lobby
Washington, D. C. 20005-5701
Tel: (202) 638-5000

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